UM0863
User manual

M24LR64-R tool driver install guide

1 Introduction

This user manual gives the procedures to install the different software drivers required to use your development, demonstration and starter kits.

It also gives a description of the development, demonstration and starter kits, and explains how to connect the RF and I²C readers to your computer.

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2 Installing the *setup.exe*

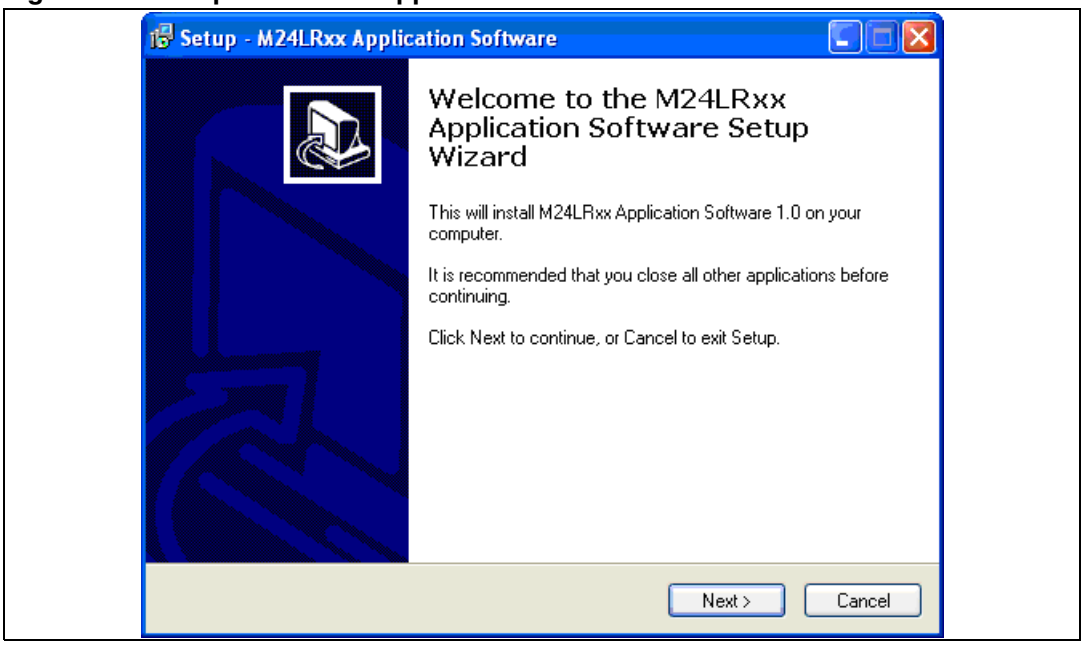
The *setup.exe* file is used to install all the drivers required by the *M24LRxx_Application_Software* on your computer.

This *setup.exe* file has to be installed for the development, demonstration and starter kits.

Caution: **Please do NOT connect the USB cable(s) to your computer now.**

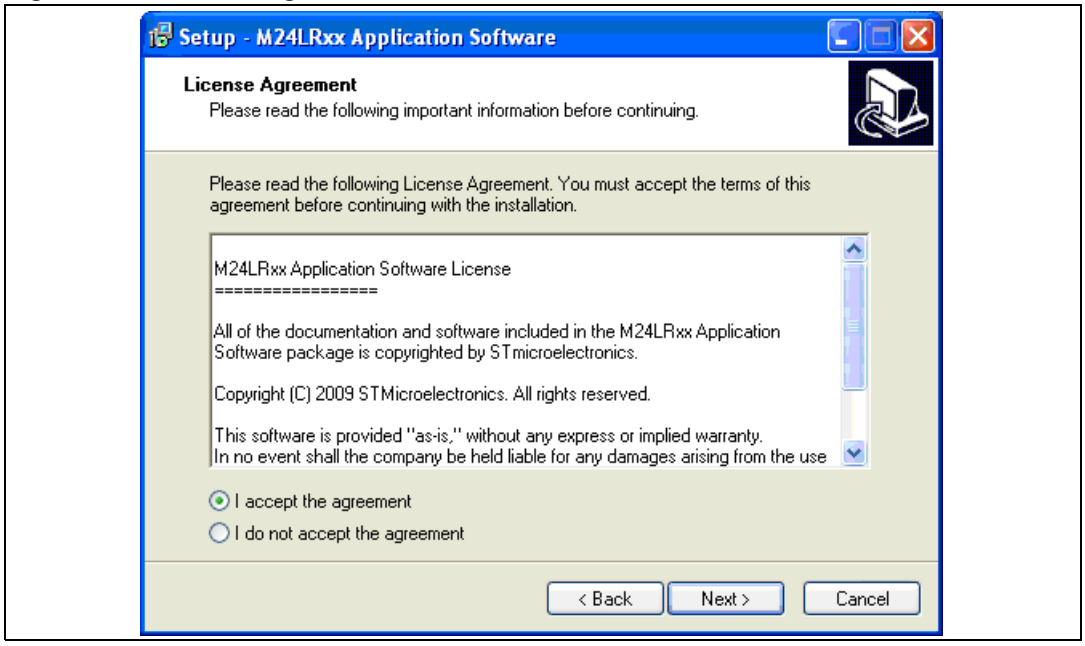
- Double click on the *setup.exe* file. The window shown in *Figure 1* appears. Click on “Next >” to continue.

Figure 1. Setup - M24LRxx Application Software window


Setup - M24LRxx Application Software
Welcome to the M24LRxx Application Software Setup Wizard
This will install M24LRxx Application Software 1.0 on your computer.
It is recommended that you close all other applications before continuing.
Click Next to continue, or Cancel to exit Setup.
Next >
Cancel

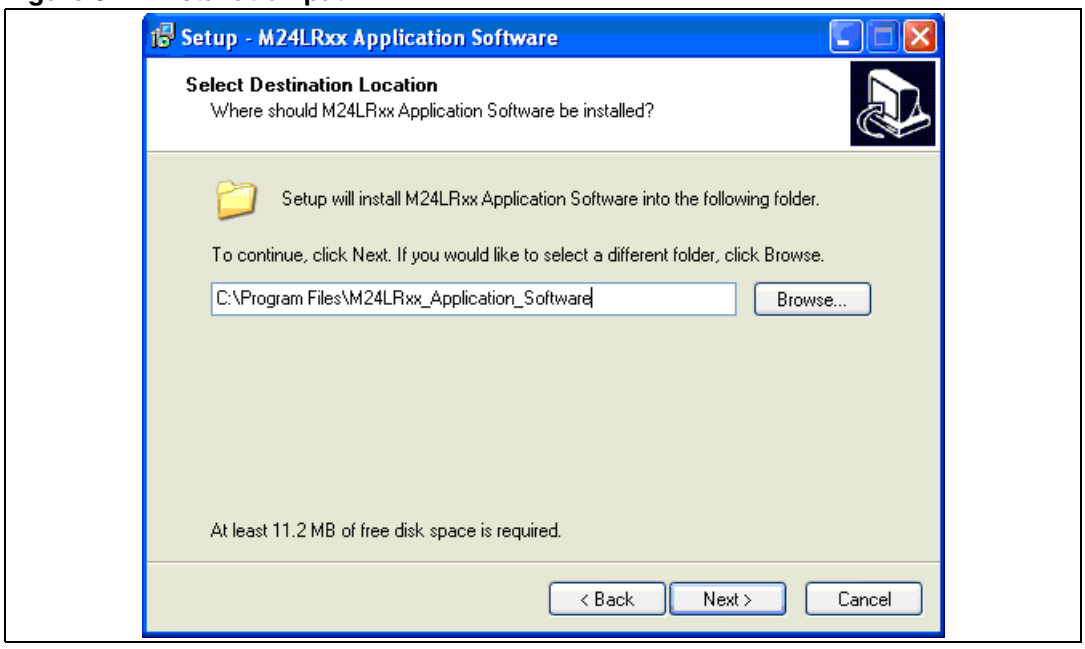
- Read the License Agreement and click on “I accept the agreement” if you agree (see *Figure 2*).

Figure 2. License Agreement window


Setup - M24LRxx Application Software
License Agreement
Please read the following important information before continuing.
Please read the following License Agreement. You must accept the terms of this agreement before continuing with the installation.
M24LRxx Application Software License
==========
All of the documentation and software included in the M24LRxx Application Software package is copyrighted by STmicroelectronics.
Copyright (C) 2009 STMicroelectronics. All rights reserved.
This software is provided "as-is," without any express or implied warranty.
In no event shall the company be held liable for any damages arising from the use
I accept the agreement
I do not accept the agreement
< Back
Next >
Cancel

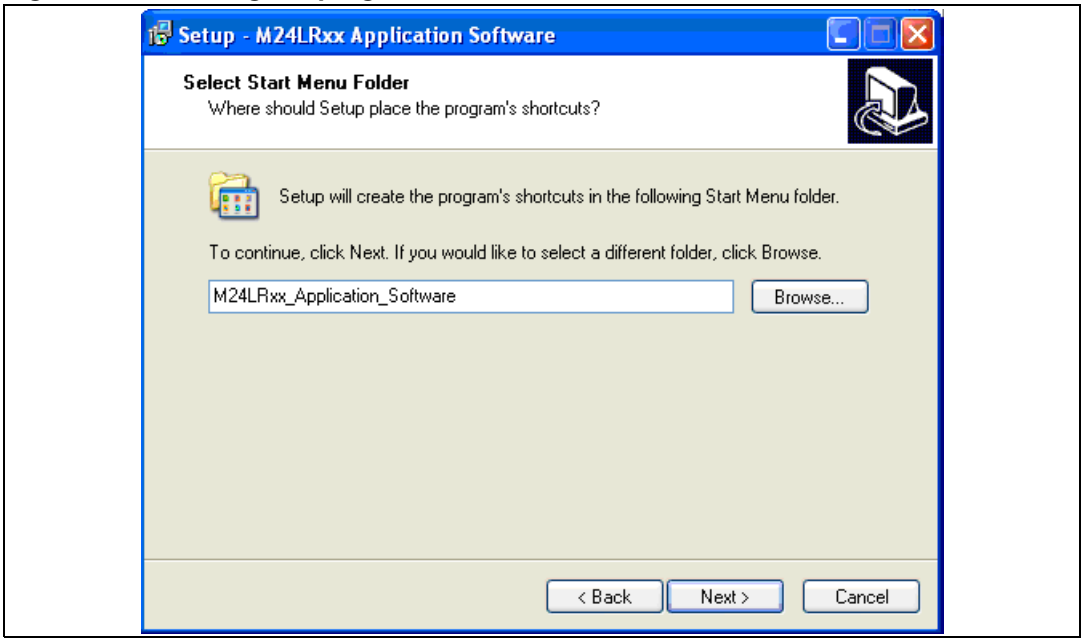
- Browse your computer to select the path where you want to install this software (see *Figure 3*). Then click on Next.

Figure 3. Installation path


Setup - M24LRxx Application Software
Select Destination Location
Where should M24LRxx Application Software be installed?
Setup will install M24LRxx Application Software into the following folder.
To continue, click Next. If you would like to select a different folder, click Browse.
C:\Program Files\M24LRxx_Application_Software
Browse...
At least 11.2 MB of free disk space is required.
< Back
Next >
Cancel

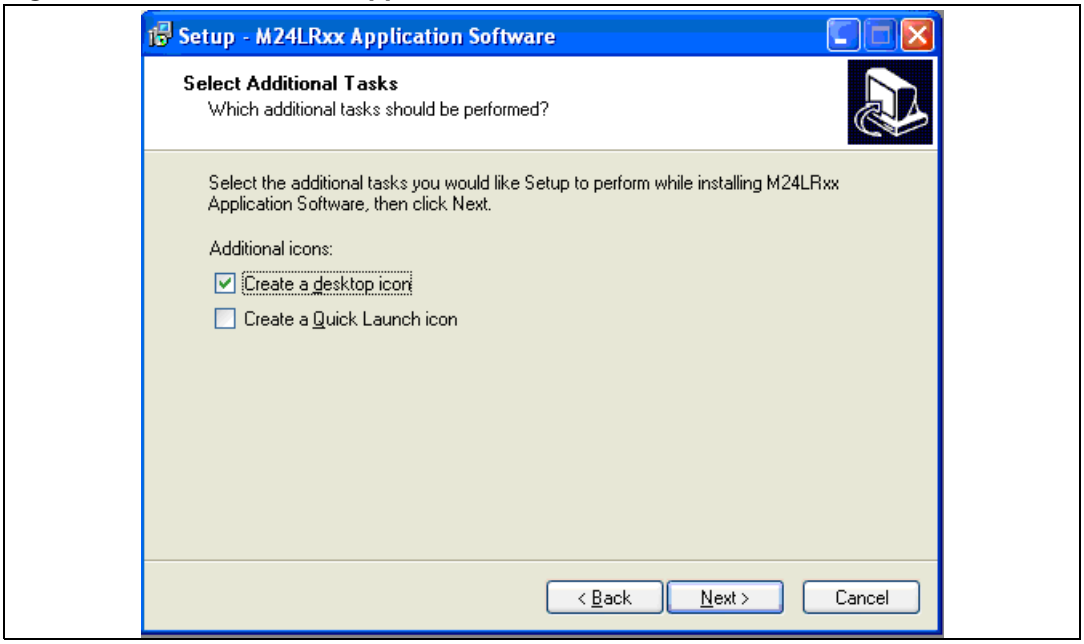
- A new window opens to create the application shortcuts. By default, select “Next”, otherwise, browse your computer (see *Figure 4*).

Figure 4. Creating the program shortcuts


Setup - M24LRxx Application Software
Select Start Menu Folder
Where should Setup place the program's shortcuts?
Setup will create the program's shortcuts in the following Start Menu folder.
To continue, click Next. If you would like to select a different folder, click Browse.
M24LRxx_Application_Software
Browse...
< Back
Next >
Cancel

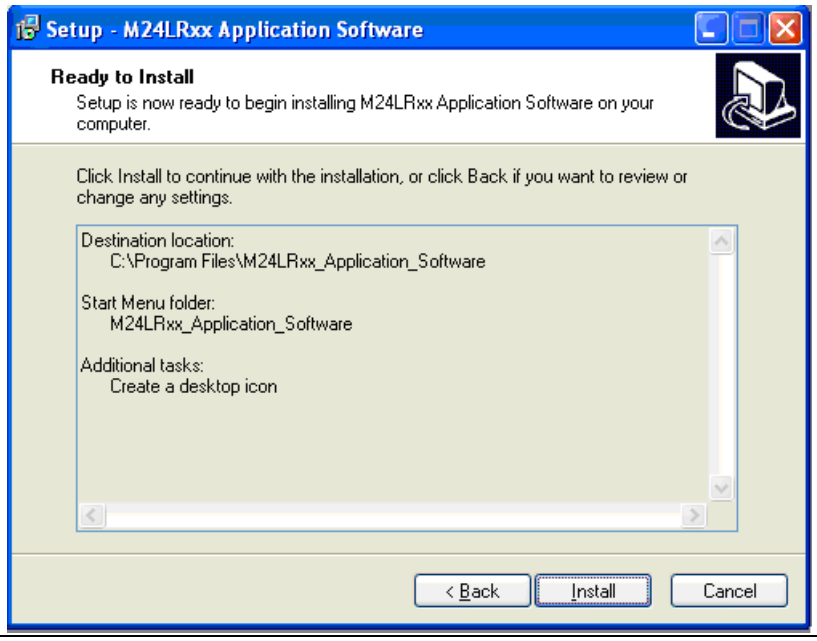
- Define the type of icon you want then click “Next” (see *Figure 5*).

Figure 5. Location of the application icon


Setup - M24LRxx Application Software
Select Additional Tasks
Which additional tasks should be performed?
Select the additional tasks you would like Setup to perform while installing M24LRxx Application Software, then click Next.
Additional icons:
Create a desktop icon
Create a Quick Launch icon
< Back
Next >
Cancel

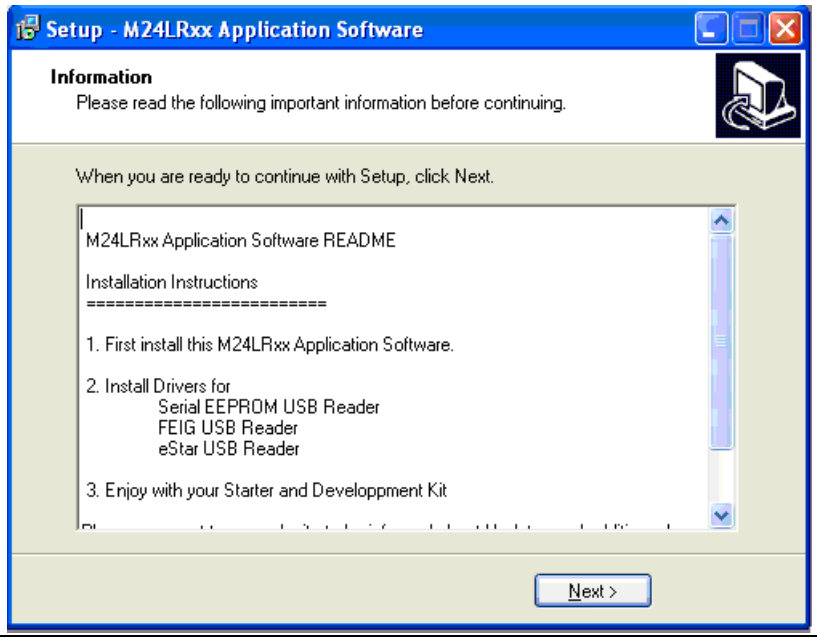
- Install the user Interface software of the M24LR64-R tools (see *Figure 6*).

Figure 6. Installing the user interface


Setup - M24LRxx Application Software
Ready to Install
Setup is now ready to begin installing M24LRxx Application Software on your computer.
Click Install to continue with the installation, or click Back if you want to review or change any settings.
Destination location:
C:\Program Files\M24LRxx_Application_Software
Start Menu folder:
M24LRxx_Application_Software
Additional tasks:
Create a desktop icon
< Back
Install
Cancel

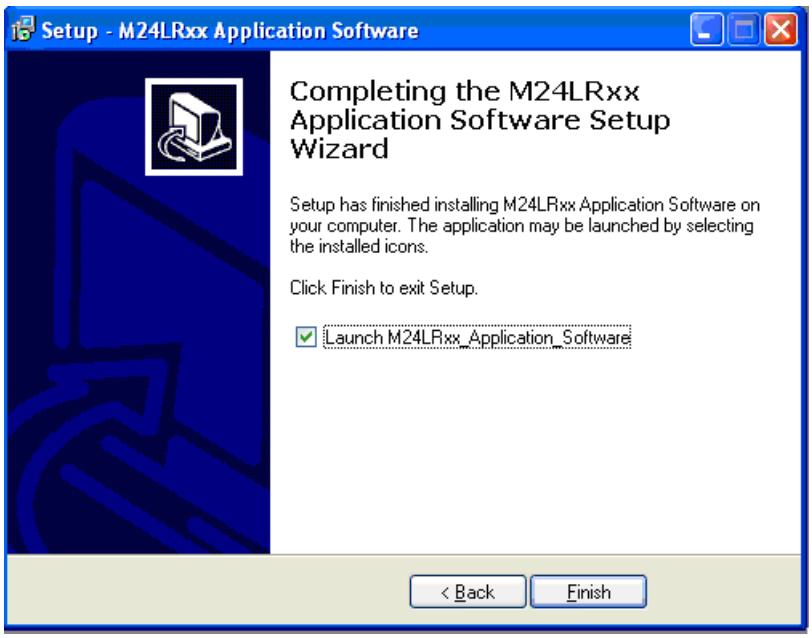
- The README information of the software is then displayed as shown in *Figure 7*. Please read it carefully.

Figure 7. Software README


Setup - M24LRxx Application Software
Information
Please read the following important information before continuing.
When you are ready to continue with Setup, click Next.
M24LRxx Application Software README
Installation Instructions
==========
1. First install this M24LRxx Application Software.
2. Install Drivers for
Serial EEPROM USB Reader
FEIG USB Reader
eStar USB Reader
3. Enjoy with your Starter and Developpment Kit
Next >

- The first step of the installation process is over!

Figure 8. Software installation completion


Setup - M24LRxx Application Software
Completing the M24LRxx Application Software Setup Wizard
Setup has finished installing M24LRxx Application Software on your computer. The application may be launched by selecting the installed icons.
Click Finish to exit Setup.
Launch M24LRxx_Application_Software
< Back
Finish

What is the status now?

- The *M24LRxx_Application_Sotware* is now installed on your computer
- You still have to install the drivers as described in *Section 3: Installing the drivers specific to the development kit and demonstration kit*.

3 Installing the drivers specific to the development kit and demonstration kit

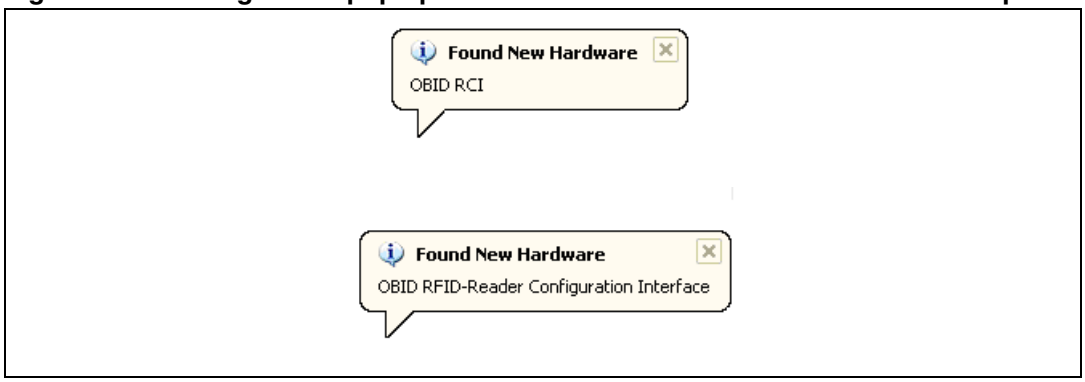
This section describes how to install the drivers allowing your computer to interface the RF reader and the I²C serial bus reader through the USB ports.

Note: The starter kit does not need any specific installation driver.

3.1 Step1: Installing the drivers for the medium-range RF reader

You should first power up the RF reader and connect its USB cable to your computer. The RF reader is then detected, and the popup messages shown in *Figure 9* appear.

Figure 9. Messages that pop up when the RF reader is connected to the computer



The “Found New Hardware Wizard” then starts up and you should follow the procedure described below:

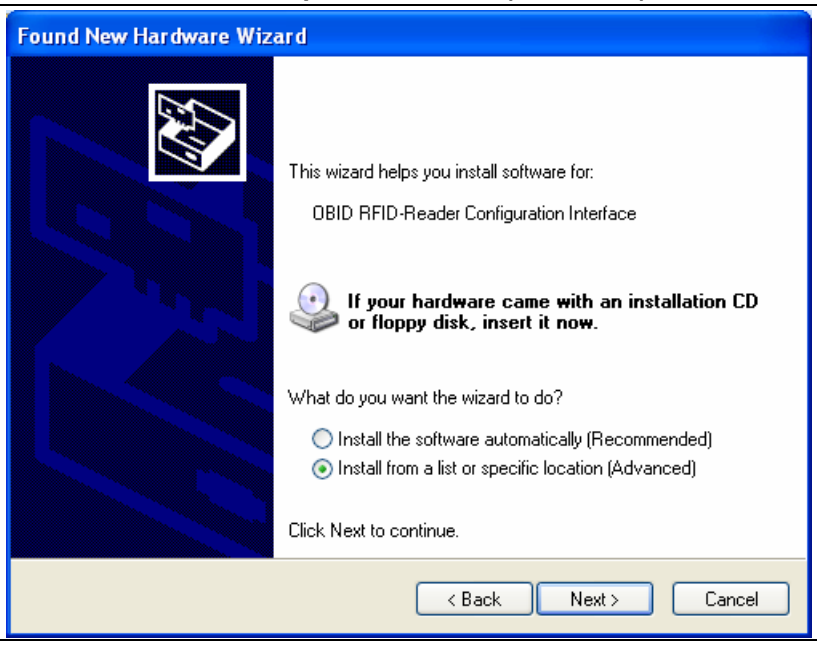
1. The “Welcome to the Found New Hardware Wizard” window opens (see *Figure 10*). Select “Yes, this time only”, and click on “Next >”.

Figure 10. Welcome to the Found New Hardware Wizard window

Found New Hardware Wizard
Welcome to the Found New Hardware Wizard
Windows will search for current and updated software by looking on your computer, on the hardware installation CD, or on the Windows Update Web site (with your permission).
Read our privacy policy
Can Windows connect to Windows Update to search for software?
Yes, this time only
Yes, now and every time I connect a device
No, not this time
Click Next to continue.
< Back
Next >
Cancel

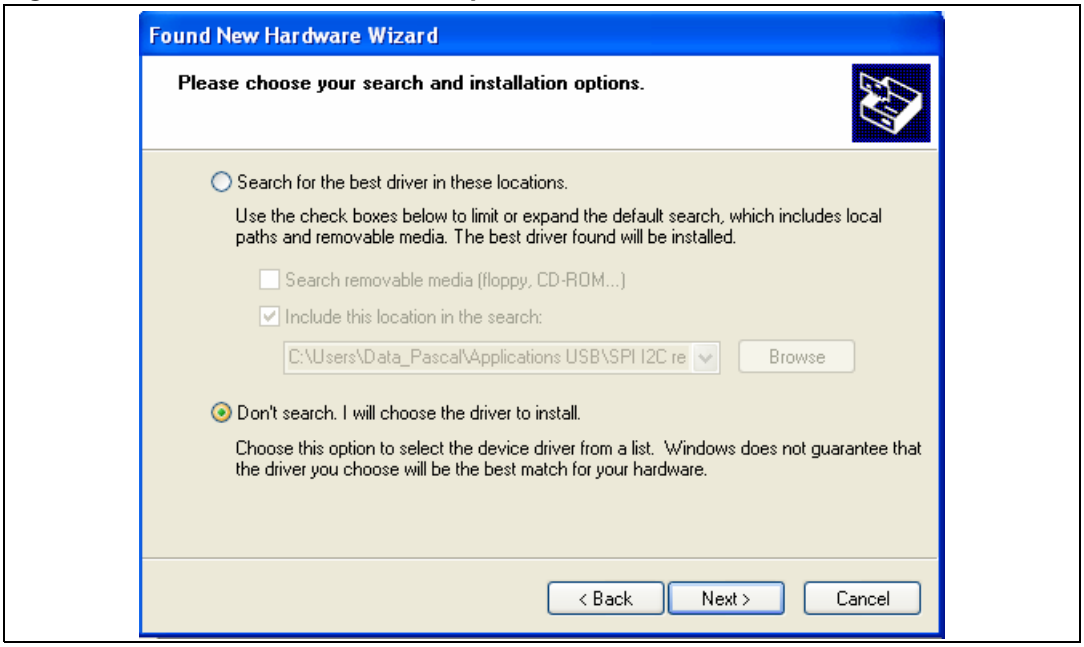
2. In the next window (see *Figure 11*), select “Install from a list or specific location (Advanced)”, and click on “Next >”.

Figure 11. “Install from a list or specific location (Advanced)”


Found New Hardware Wizard
This wizard helps you install software for:
OBID RFID-Reader Configuration Interface
If your hardware came with an installation CD or floppy disk, insert it now.
What do you want the wizard to do?
Install the software automatically (Recommended)
Install from a list or specific location (Advanced)
Click Next to continue.
< Back
Next >
Cancel

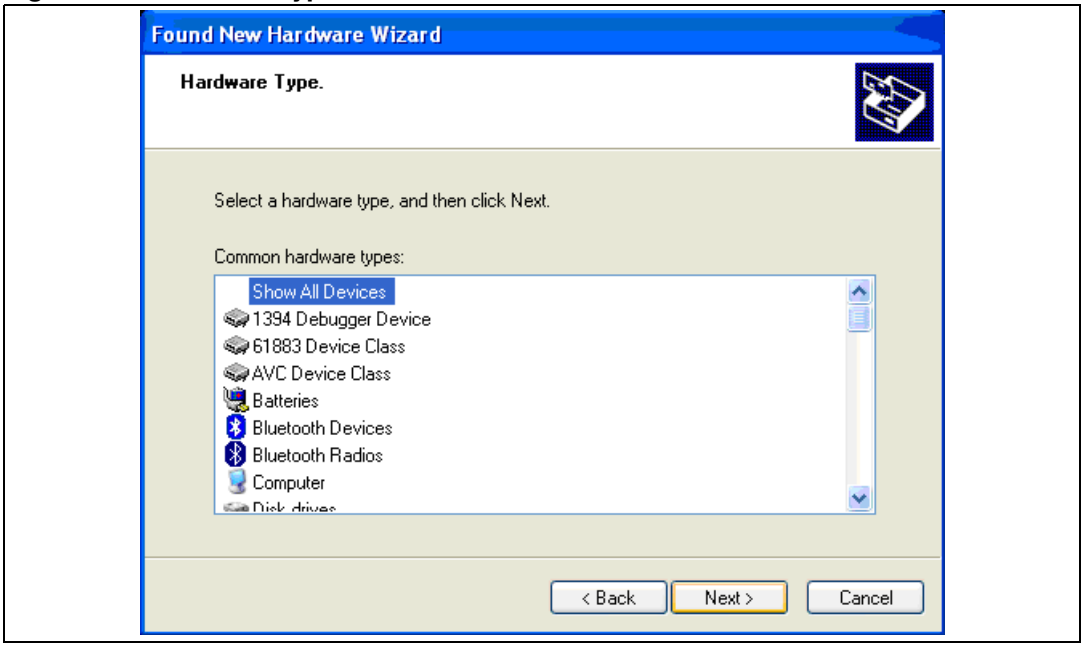
3. As shown in *Figure 12*, select “Don’t search. I will choose the driver to install.”, and click on “Next >”.

Figure 12. Search and installation options


Found New Hardware Wizard
Please choose your search and installation options.
Search for the best driver in these locations.
Use the check boxes below to limit or expand the default search, which includes local paths and removable media. The best driver found will be installed.
Search removable media (floppy, CD-ROM...)
Include this location in the search:
C:\Users\Data_Pascal\Applications USB\SPI I2C re
Browse
Don't search. I will choose the driver to install.
Choose this option to select the device driver from a list. Windows does not guarantee that the driver you choose will be the best match for your hardware.
< Back
Next >
Cancel

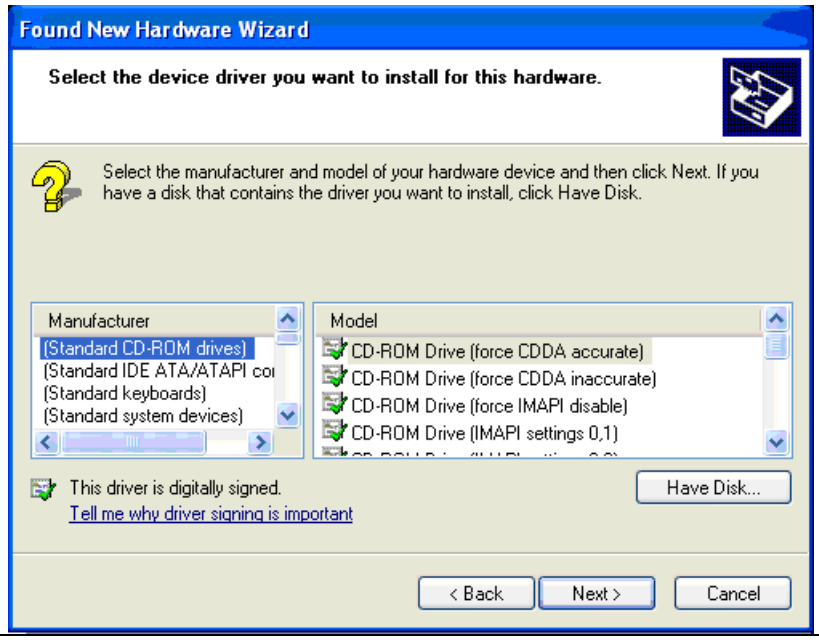
4. Then, like in *Figure 13*, select “Show All Devices”, and click on “Next >”.

Figure 13. Hardware type



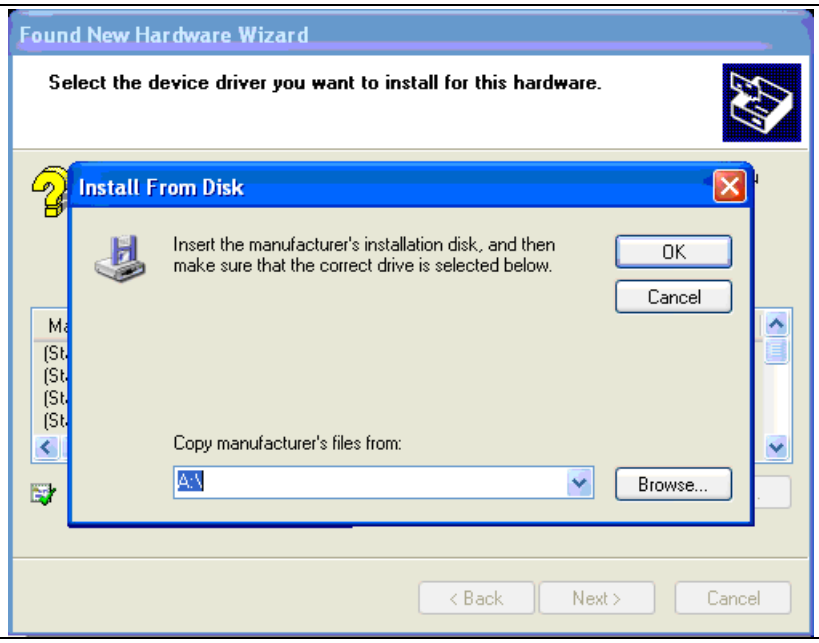
5. In the next window (see *Figure 14*), click on “Have Disk…”.

Figure 14. Selecting the device driver


Found New Hardware Wizard
Select the device driver you want to install for this hardware.
Select the manufacturer and model of your hardware device and then click Next. If you have a disk that contains the driver you want to install, click Have Disk.
Manufacturer
(Standard CD-ROM drives)
(Standard IDE ATA/ATAPI co
(Standard keyboards)
(Standard system devices)
Model
CD-ROM Drive (force CDDA accurate)
CD-ROM Drive (force CDDA inaccurate)
CD-ROM Drive (force IMAPI disable)
CD-ROM Drive (IMAPI settings 0,1)
This driver is digitally signed.
Tell me why driver signing is important
Have Disk...
< Back
Next >
Cancel

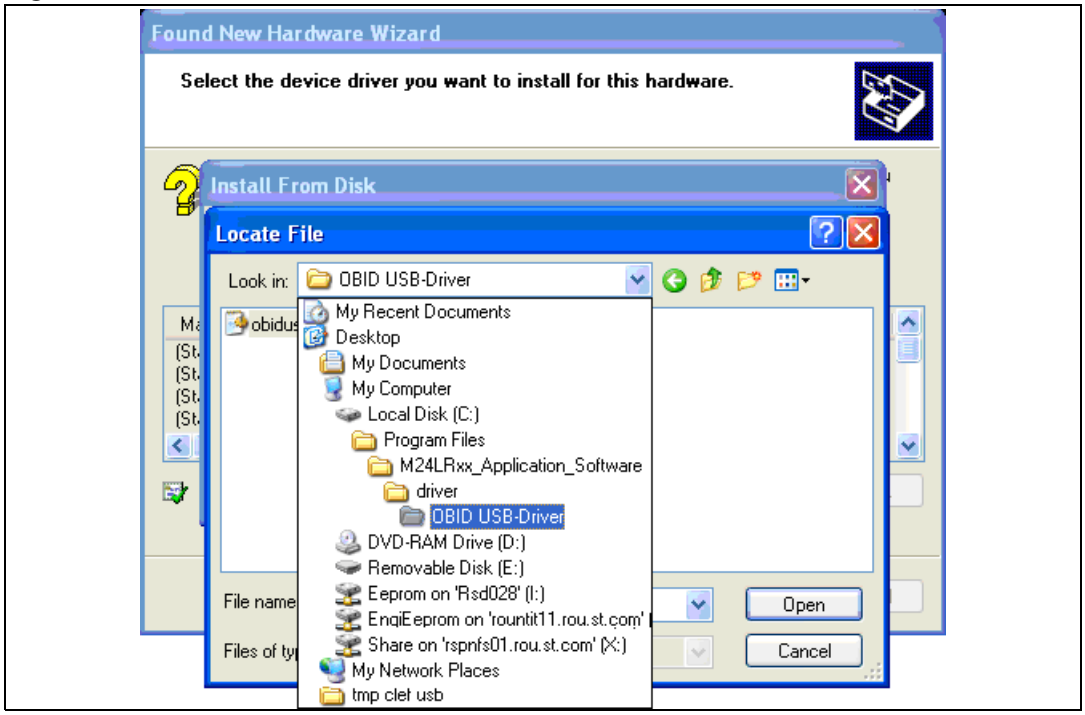
6. Then, click on “Browse…” to locate the file (see *Figure 15* and *Figure 16*).

Figure 15. Install from disk


Found New Hardware Wizard
Select the device driver you want to install for this hardware.
Install From Disk
Insert the manufacturer's installation disk, and then make sure that the correct drive is selected below.
OK
Cancel
Copy manufacturer's files from:
A:\
Browse...
< Back
Next >
Cancel

7. Select the *ObidUsb.inf* file in the install directory. The default path is: *C:/Program File/M24LRxx_Application_Software/Driver/OBID USB driver/*

Figure 16. Locate file



Click on “Open” (see *Figure 17*) and then on “OK” (see *Figure 18*)

Figure 17. Select the *obidusb.inf* file and Open

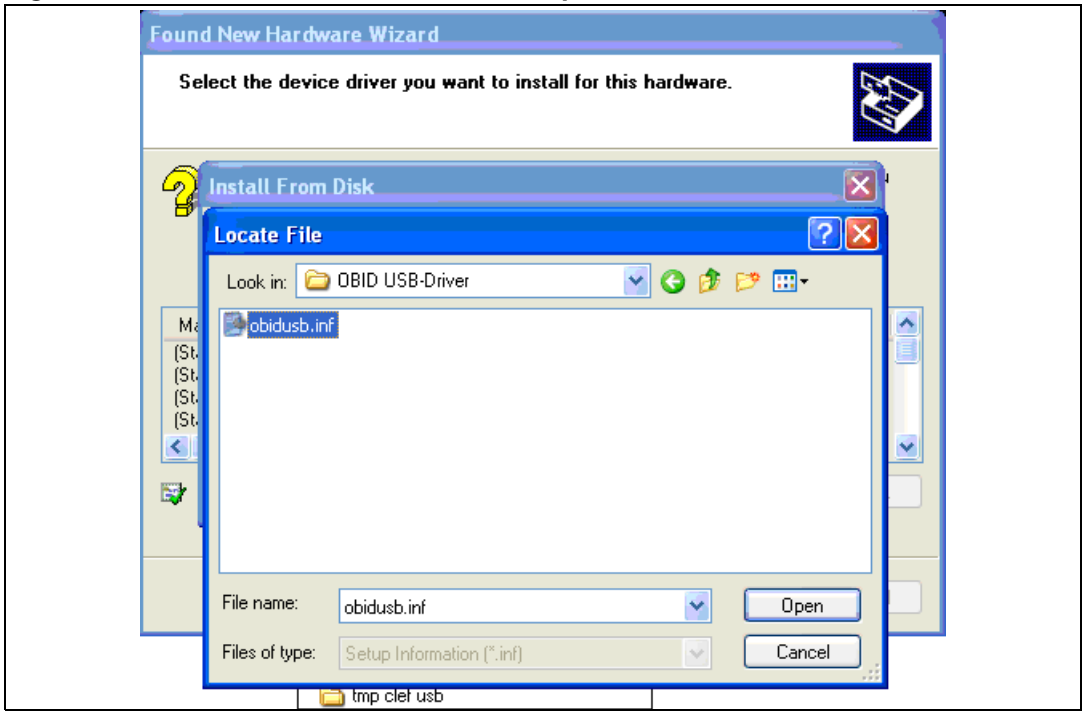
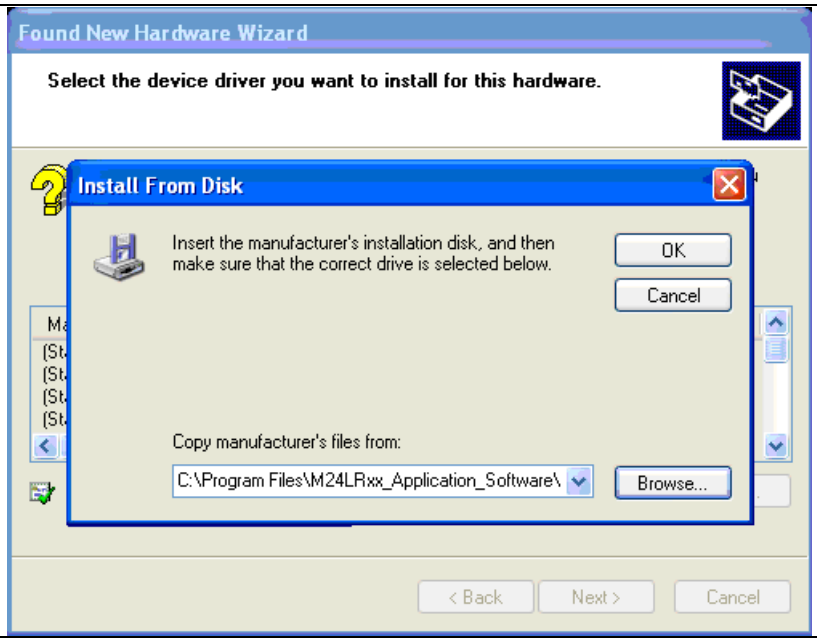


Figure 18. Click “OK” to return to initial window


Found New Hardware Wizard
Select the device driver you want to install for this hardware.
Install From Disk
Insert the manufacturer's installation disk, and then make sure that the correct drive is selected below.
OK
Cancel
Copy manufacturer's files from:
C:\Program Files\M24LRxx_Application_Software\
Browse...
< Back
Next >
Cancel

8. The window now displays the OBID drivers that have been selected (see *Figure 19*). Click on “Next >” to install the driver (see *Figure 20*).

Figure 19. The driver has been selected

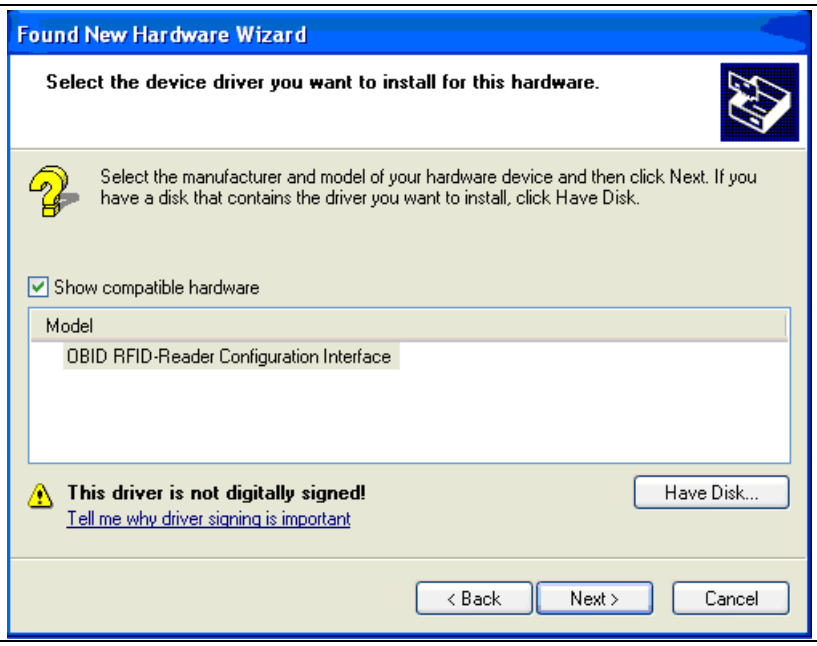
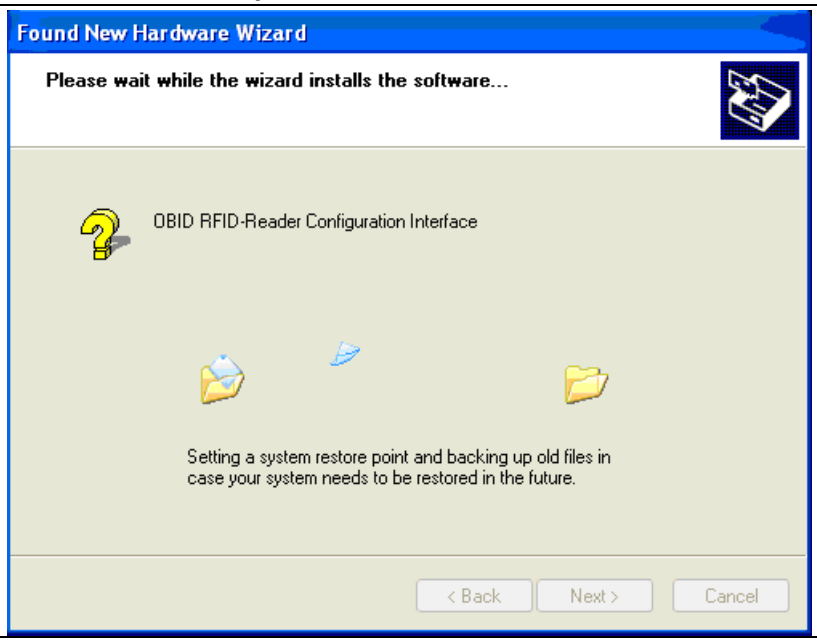

Found New Hardware Wizard
Select the device driver you want to install for this hardware.
Select the manufacturer and model of your hardware device and then click Next. If you have a disk that contains the driver you want to install, click Have Disk.
Show compatible hardware
Model
OBID RFID-Reader Configuration Interface
This driver is not digitally signed!
Tell me why driver signing is important
Have Disk...
< Back
Next >
Cancel

Figure 20. Driver installation process


Found New Hardware Wizard
Please wait while the wizard installs the software...
OBID RFID-Reader Configuration Interface
Setting a system restore point and backing up old files in case your system needs to be restored in the future.
< Back
Next >
Cancel

9. When the installation is complete, click on “Finish” (see *Figure 21*).

Figure 21. Installation complete

Found New Hardware Wizard
Completing the Found New Hardware Wizard
The wizard has finished installing the software for:
OBID RFID-Reader Configuration Interface
Click Finish to close the wizard.
< Back
Finish
Cancel

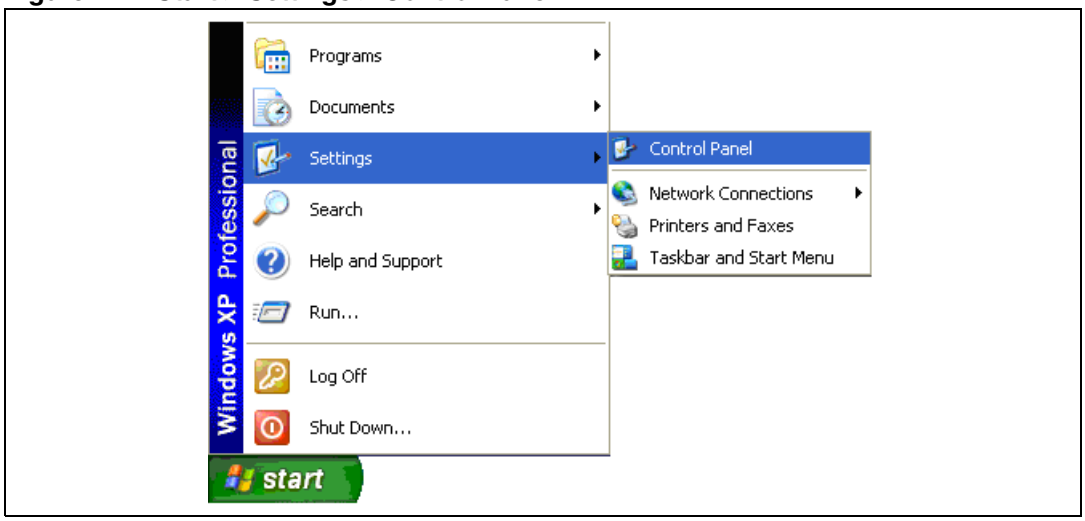
The drivers allowing your computer to interface the RF reader are now installed. The following step is described in *Section 3.2: Step2: Installing the drivers for the I²C serial bus reader (serial EEPROM USB reader)*.

Advanced information

You can verify that the medium-range RF reader drivers are correctly installed. OBID USB Devices should be detected when the medium-range RF reader is plugged into your computer's USB port.

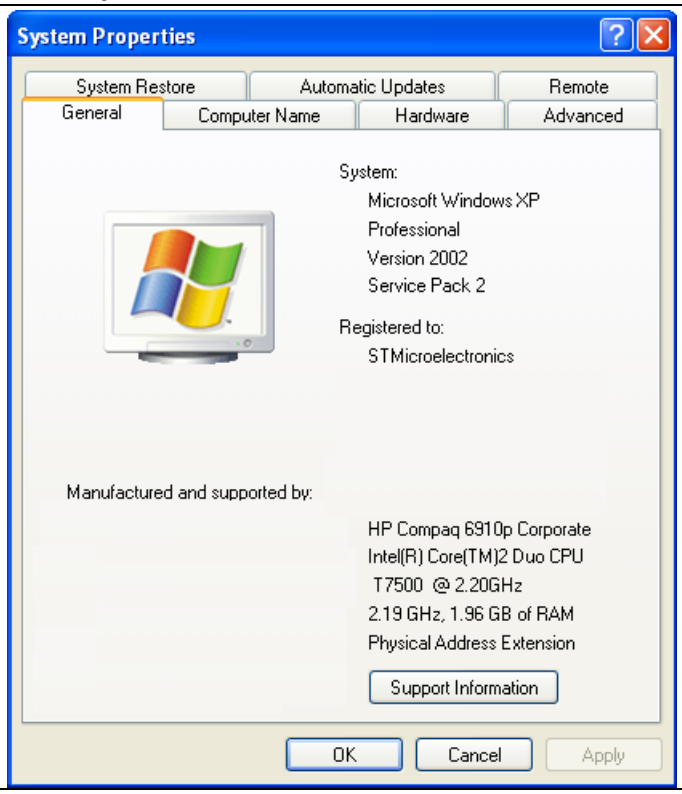
To check that the drivers are correctly installed, go to Start/Settings/Control Panel as shown in *Figure 22*.

Figure 22. Start > Settings > Control Panel



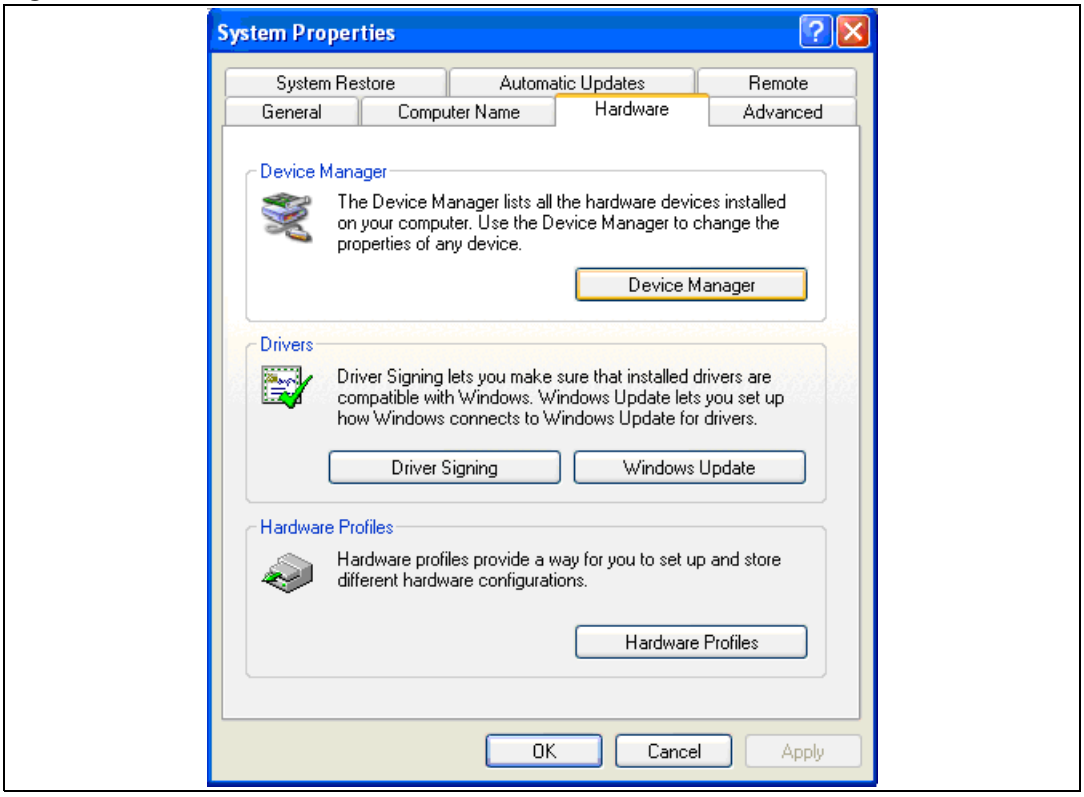
In the Control Panel folder, double click on System. This causes the System Properties window to open (see *Figure 23*).

Figure 23. System Properties window



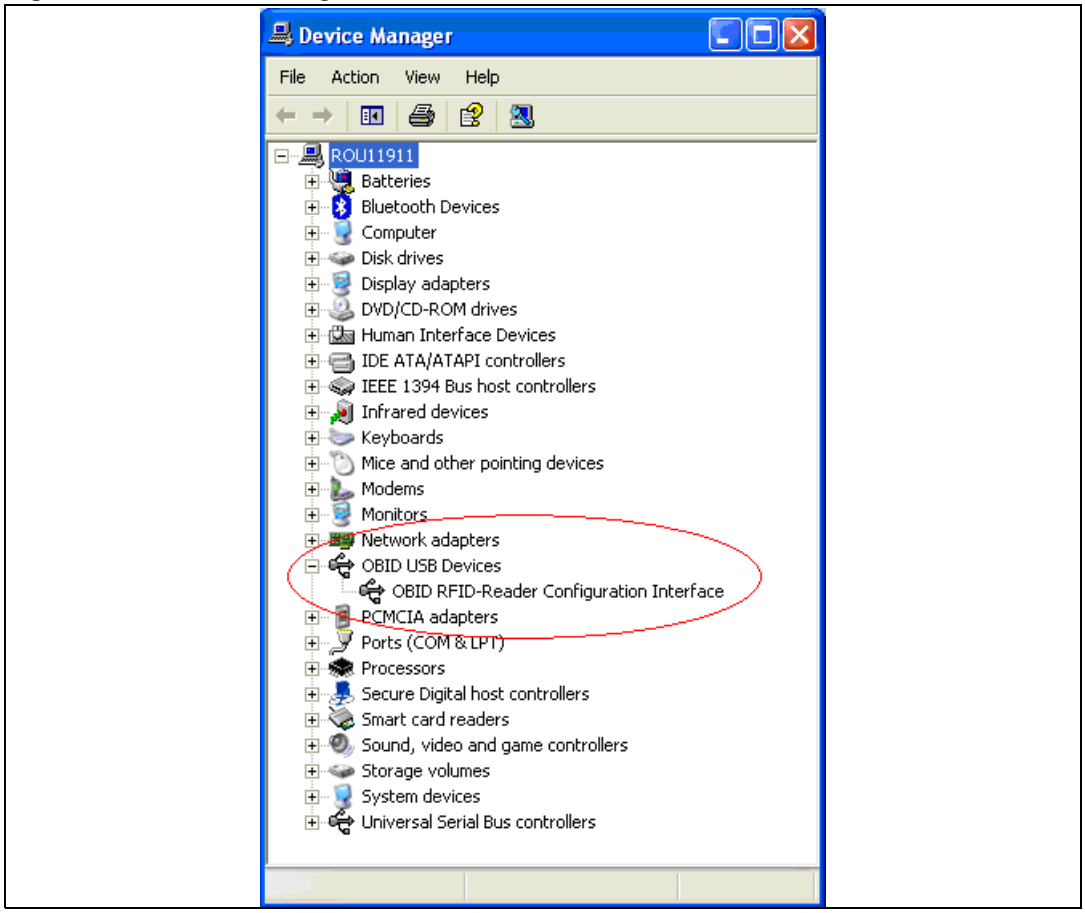
Then click on the Hardware tab and then on Device Manager as shown in *Figure 24*.

Figure 24. Hardware tab


System Properties
System Restore
Automatic Updates
Remote
General
Computer Name
Hardware
Advanced
Device Manager
The Device Manager lists all the hardware devices installed on your computer. Use the Device Manager to change the properties of any device.
Device Manager
Drivers
Driver Signing lets you make sure that installed drivers are compatible with Windows. Windows Update lets you set up how Windows connects to Windows Update for drivers.
Driver Signing
Windows Update
Hardware Profiles
Hardware profiles provide a way for you to set up and store different hardware configurations.
Hardware Profiles
OK
Cancel
Apply

The Device Manager window opens (see *Figure 25*). “OBID USB Devices” should be present.

Figure 25. Device Manager window



3.2 Step2: Installing the drivers for the I²C serial bus reader (serial EEPROM USB reader)

Note that if you do not have to use the serial EEPROM USB reader, you do not need to install these drivers.

To install the drivers: first, connect the USB cable between the I²C serial bus reader and your computer. The I²C bus reader is then detected and the following popup message appears (see *Figure 26*).

Figure 26. Popup message

The “Found New Hardware Wizard” then starts up and you should follow the procedure described below:

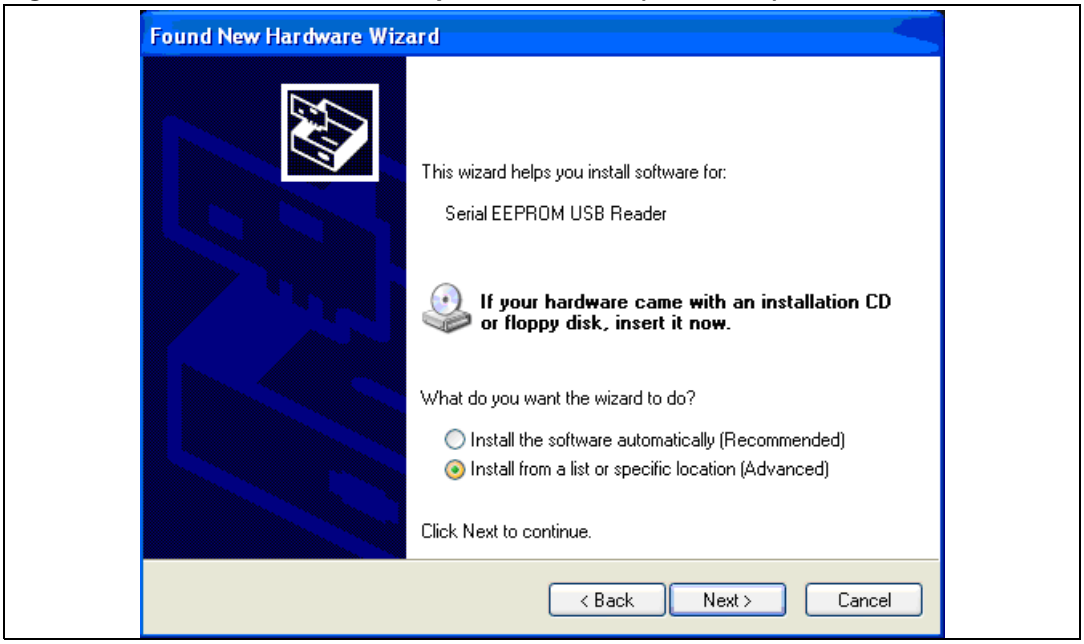
10. The “Welcome to the Found New Hardware Wizard” window opens (see *Figure 27*). Select “Yes, this time only”, and click on “Next >”.

Figure 27. Welcome to the Found New Hardware Wizard window

Found New Hardware Wizard
Welcome to the Found New Hardware Wizard
Windows will search for current and updated software by looking on your computer, on the hardware installation CD, or on the Windows Update Web site (with your permission).
Read our privacy policy
Can Windows connect to Windows Update to search for software?
Yes, this time only
Yes, now and every time I connect a device
No, not this time
Click Next to continue.
< Back
Next >
Cancel

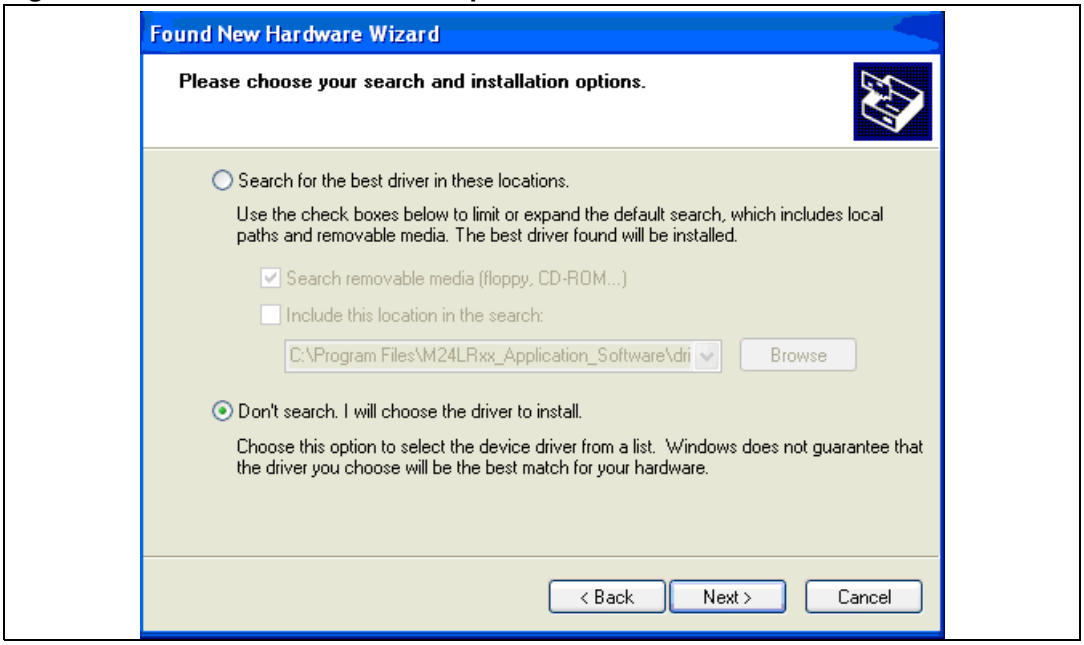
11. In the next window (see *Figure 28*), select “Install from a list or specific location (Advanced)”, and click on “Next >”.

Figure 28. “Install from a list or specific location (Advanced)”


Found New Hardware Wizard
This wizard helps you install software for:
Serial EEPROM USB Reader
If your hardware came with an installation CD or floppy disk, insert it now.
What do you want the wizard to do?
Install the software automatically (Recommended)
Install from a list or specific location (Advanced)
Click Next to continue.
< Back
Next >
Cancel

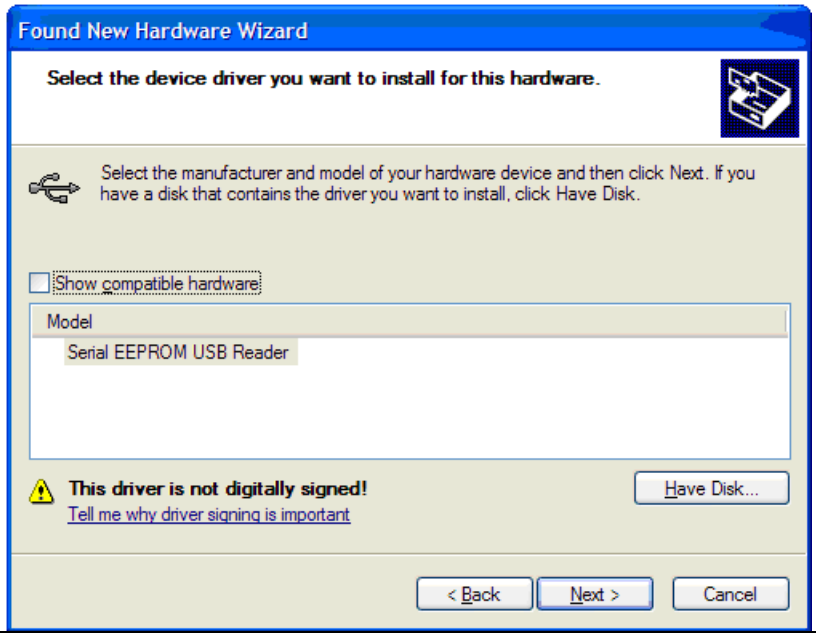
12. As shown in *Figure 29*, select “Don’t search. I will choose the driver to install.”, and click on “Next >”.

Figure 29. Search and installation options


Found New Hardware Wizard
Please choose your search and installation options.
Search for the best driver in these locations.
Use the check boxes below to limit or expand the default search, which includes local paths and removable media. The best driver found will be installed.
Search removable media (floppy, CD-ROM...)
Include this location in the search:
C:\Program Files\M24LRxx_Application_Software\dri
Browse
Don't search. I will choose the driver to install.
Choose this option to select the device driver from a list. Windows does not guarantee that the driver you choose will be the best match for your hardware.
< Back
Next >
Cancel

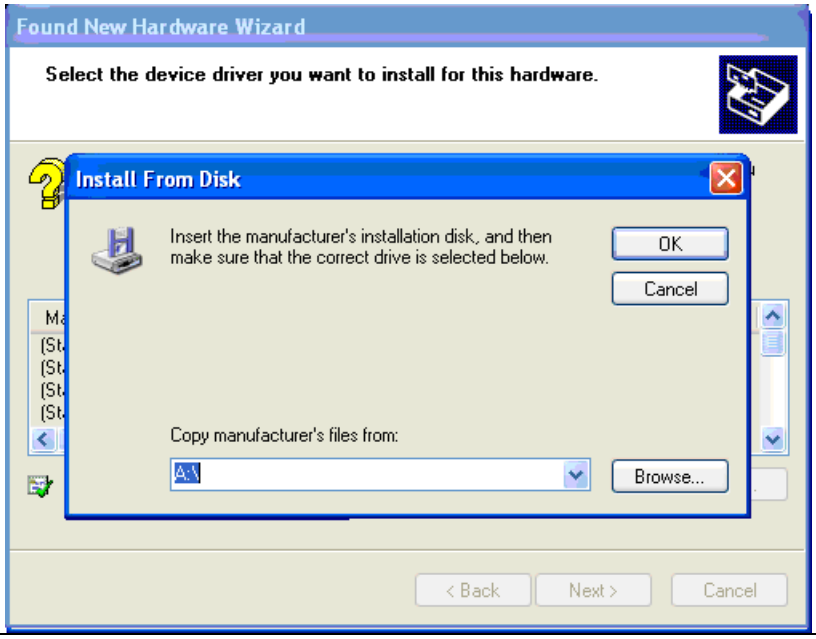
13. In the next window (see *Figure 30*), uncheck the box in front of “Show compatible hardware” and click on “Have Disk…”.

Figure 30. Selecting the device driver to install


Found New Hardware Wizard
Select the device driver you want to install for this hardware.
Select the manufacturer and model of your hardware device and then click Next. If you have a disk that contains the driver you want to install, click Have Disk.
Show compatible hardware
Model
Serial EEPROM USB Reader
This driver is not digitally signed!
Tell me why driver signing is important
Have Disk...
< Back
Next >
Cancel

14. Then, click on “Browse…” to locate the file (see *Figure 15* and *Figure 16*).

Figure 31. Browsing your computer


Found New Hardware Wizard
Select the device driver you want to install for this hardware.
Install From Disk
Insert the manufacturer's installation disk, and then make sure that the correct drive is selected below.
OK
Cancel
Copy manufacturer's files from:
A:\
Browse...
< Back
Next >
Cancel

15. Browse your computer for the *Serial_EEPROM_USB_Reader_driver.inf* file. The default path is:

C:/Program File/M24LRxx_Application_Software/driver/Serial EEPROM USB Reader Driver/

Select the *Serial_EEPROM_USB_Reader_driver.inf* file and then click on “Open” (see *Figure 32*) and “OK” (see *Figure 33*)

Figure 32. File location

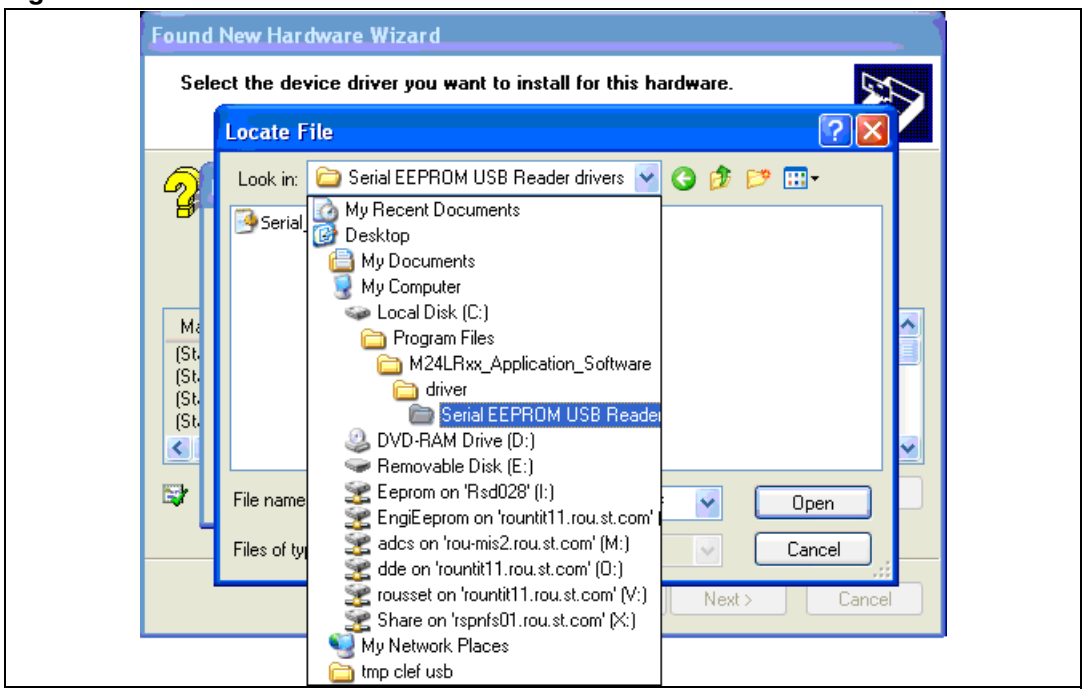
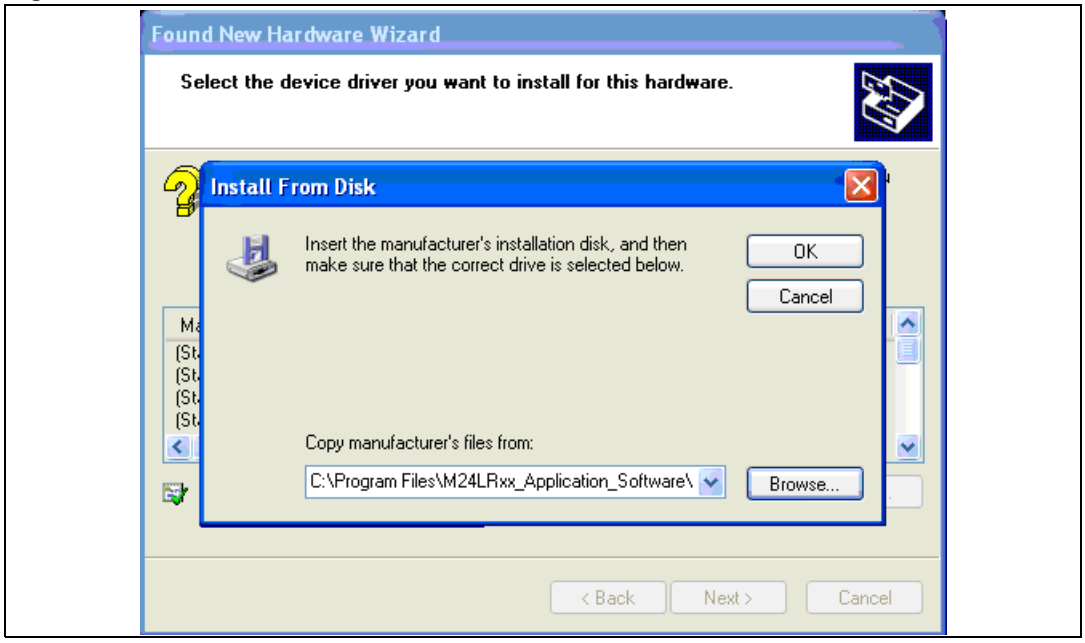
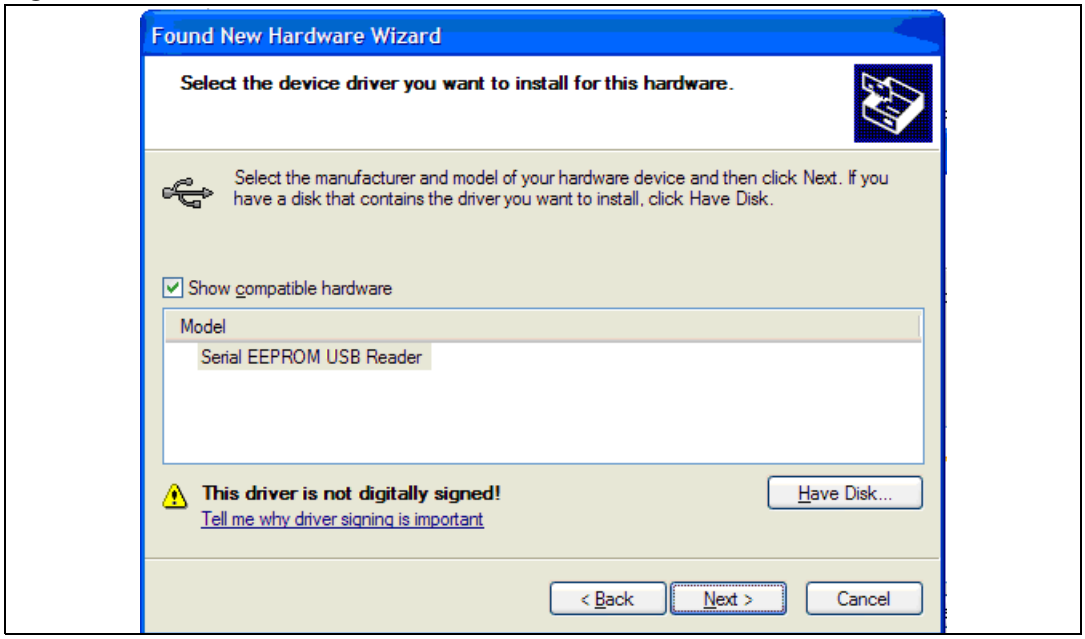


Figure 33. Instal from disk


Found New Hardware Wizard
Select the device driver you want to install for this hardware.
Install From Disk
Insert the manufacturer's installation disk, and then make sure that the correct drive is selected below.
OK
Cancel
Copy manufacturer's files from:
C:\Program Files\M24LRxx_Application_Software\
Browse...
< Back
Next >
Cancel

16. The window now displays the EEPROM USB drivers that have been selected (see *Figure 34*). Click on “Next >” to install the driver (see *Figure 35*).

Figure 34. EEPROM USB drivers to be installed


Found New Hardware Wizard
Select the device driver you want to install for this hardware.
Select the manufacturer and model of your hardware device and then click Next. If you have a disk that contains the driver you want to install, click Have Disk.
Show compatible hardware
Model
Serial EEPROM USB Reader
This driver is not digitally signed!
Tell me why driver signing is important
Have Disk...
< Back
Next >
Cancel

17. During the installation, a new windows appears to inform you that the driver was not certified by Microsoft®. Click on “Continue Anyway”. When the installation is complete, click on “Finish” (see *Figure 36*).

Figure 35. Software installation

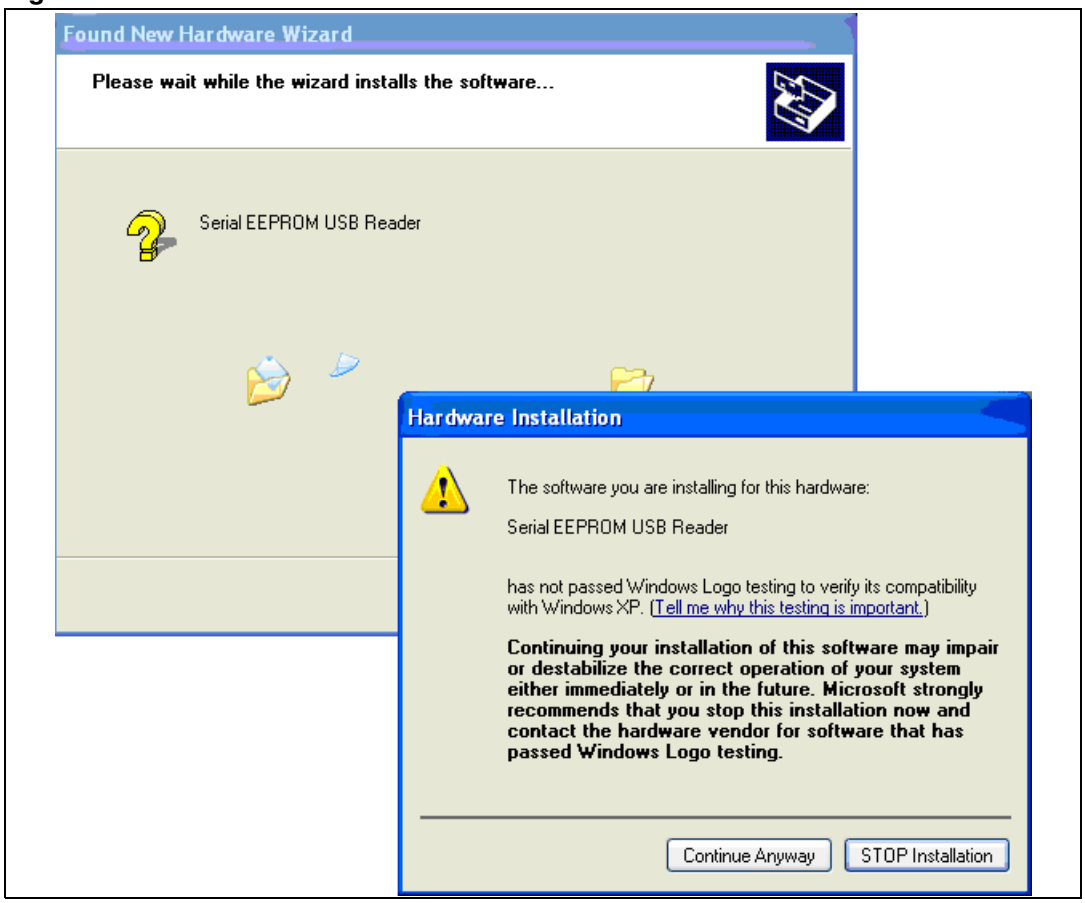
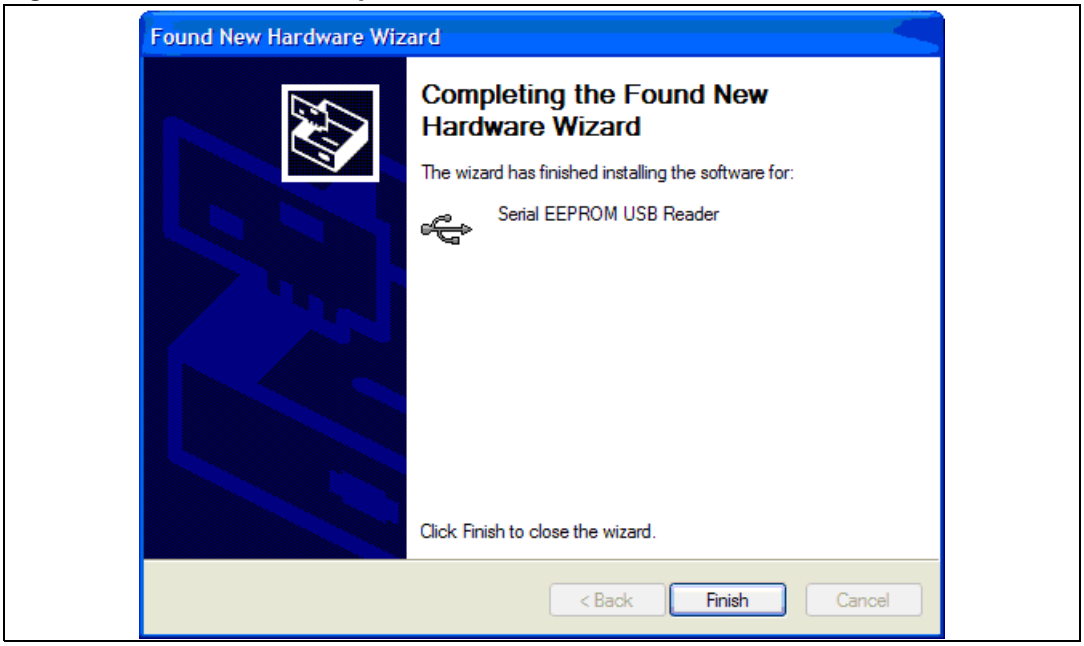

Found New Hardware Wizard
Please wait while the wizard installs the software...
Serial EEPROM USB Reader
Hardware Installation
The software you are installing for this hardware:
Serial EEPROM USB Reader
has not passed Windows Logo testing to verify its compatibility with Windows XP. (Tell me why this testing is important.)
Continuing your installation of this software may impair or destabilize the correct operation of your system either immediately or in the future. Microsoft strongly recommends that you stop this installation now and contact the hardware vendor for software that has passed Windows Logo testing.
Continue Anyway
STOP Installation

Figure 36. Installation complete

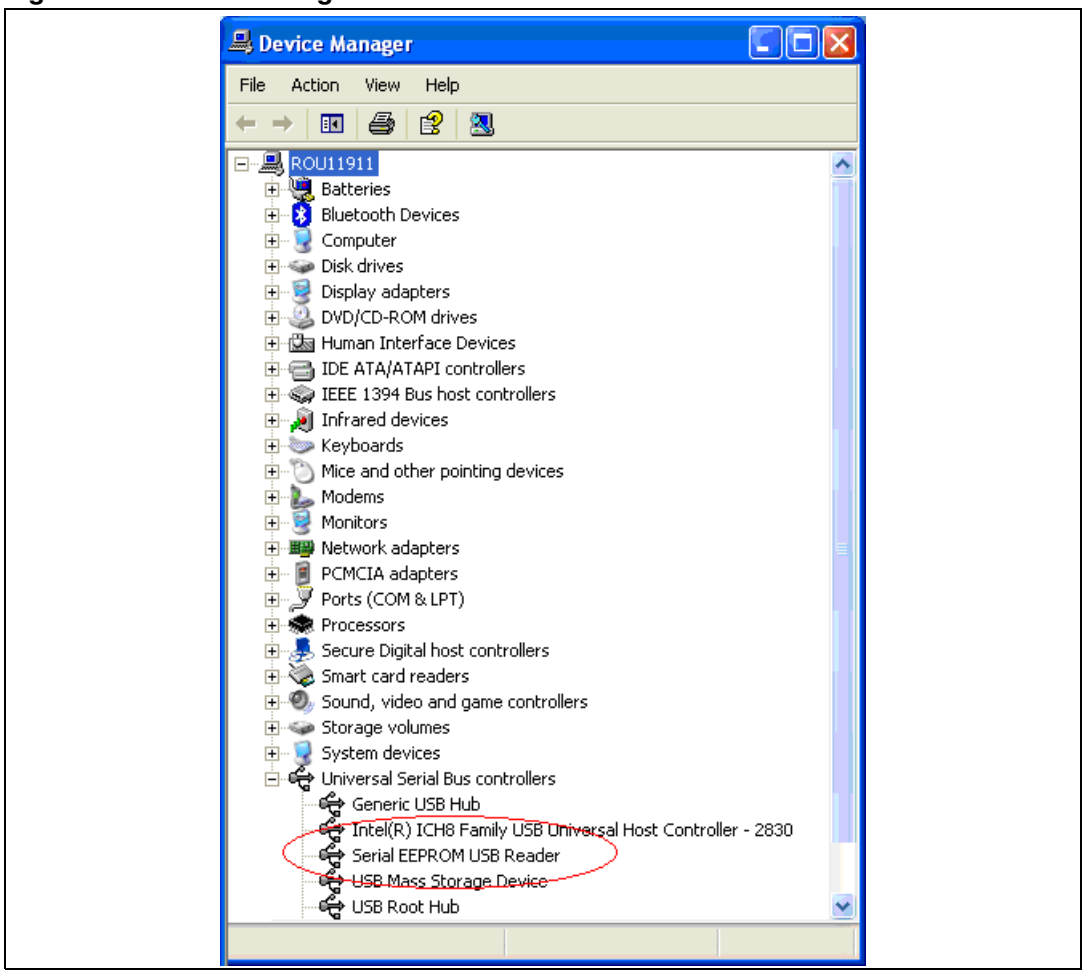

Found New Hardware Wizard
Completing the Found New Hardware Wizard
The wizard has finished installing the software for:
Serial EEPROM USB Reader
Click Finish to close the wizard.
< Back
Finish
Cancel

The drivers allowing your computer to interface the I²C bus reader are now installed.

Advanced information

You can check that the I²C bus reader drivers are installed by going to Start/Settings/Control Panel/System. Click on the Hardware tab and then on Device Manager. In the Device Manager the I²C bus reader should be shown as a USB peripheral (defined as *Serial EEPROM USB Reader*, as shown in *Figure 36*).

Figure 37. Device Manager window



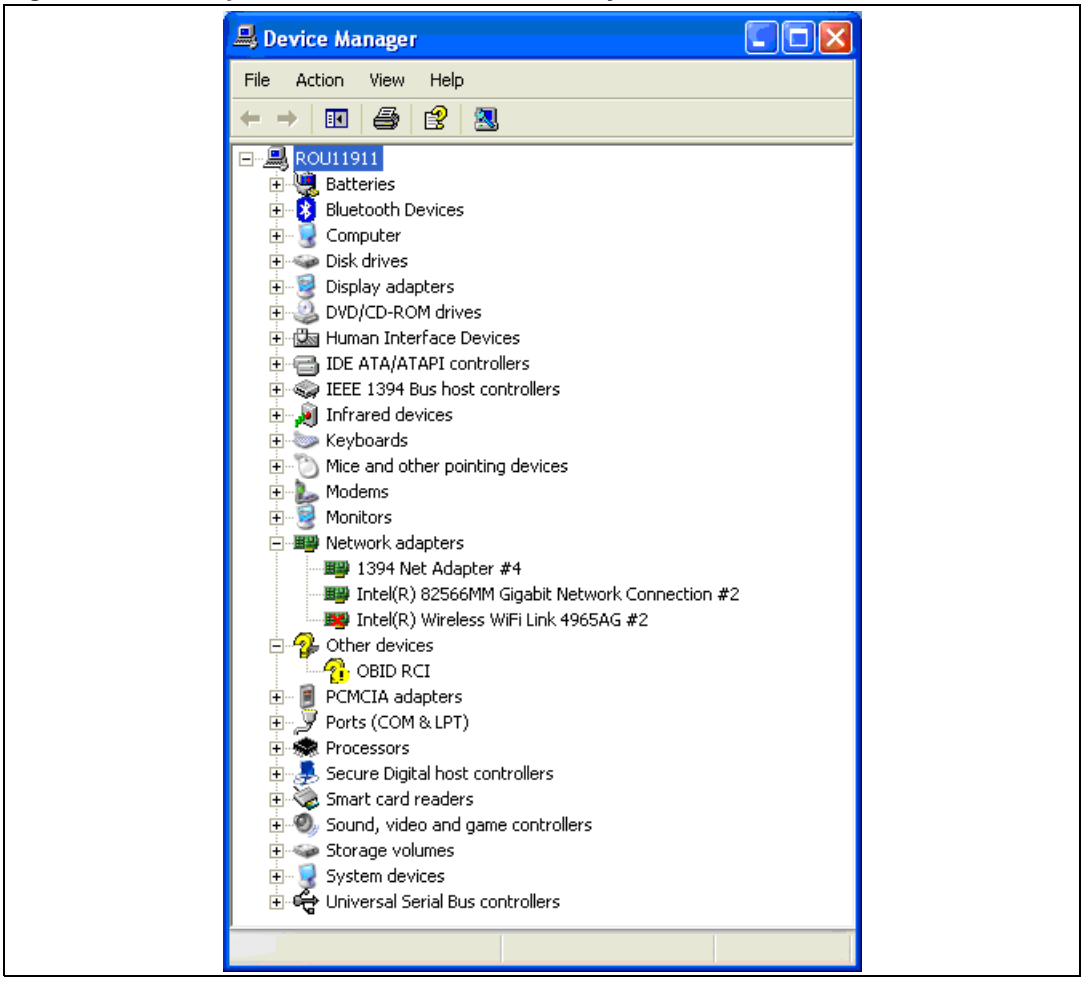
3.3 Trouble shooting

3.3.1 RF reader driver

You can check that the drivers for the RF and I²C bus readers are correctly installed by viewing the “Device Manager” window.

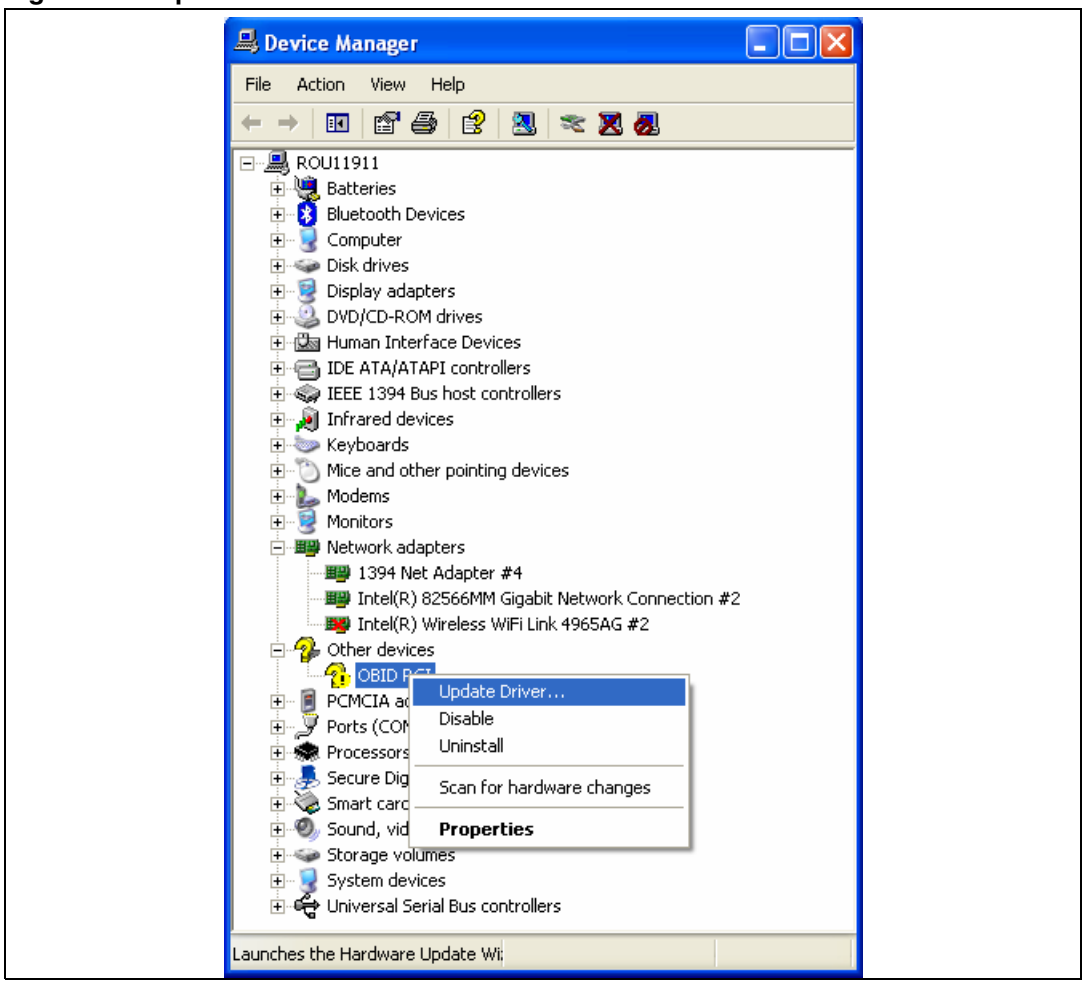
In the example shown in *Figure 38*, you can see that the OBID is not correctly installed.

Figure 38. Example where OBID is not correctly installed



Right-click on “OBID RCI” and select “Update Driver...” as shown in *Figure 39*.

Figure 39. Update Driver...



You can now try to reinstall the reader drivers, as explained in *Section 3.1: Step1: Installing the drivers for the medium-range RF reader* for the RF reader, and in *Section 3.2: Step2: Installing the drivers for the I²C serial bus reader (serial EEPROM USB reader)* for the I²C reader).

4 Tool kit descriptions

4.1 M24LR64-R's development kit

4.1.1 Ordering information

The part number of the development kit is: **DEVKIT-M24LR-A**.

4.1.2 Development kit package

The development kit contains:

- a middle-range RF reader (ISO 15693, RF 13.56 MHz) interfaced via the USB bus and an external power supply to have a greater read range.

Figure 40. RF reader

- an external antenna shown in *Figure 41*.

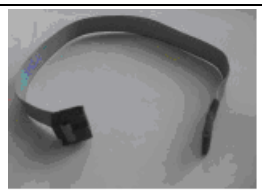
Figure 41. External antenna

- Serial EEPROM USB reader: I²C bus reader (interfaced via the USB bus). *Figure 42* shows the reader.

Figure 42. I²C bus reader (serial EEPROM USB reader)

- An I²C bus cable to connect the serial EEPROM USB reader and the I²C bus of the reference antenna. *Figure 43* shows the cable to use.

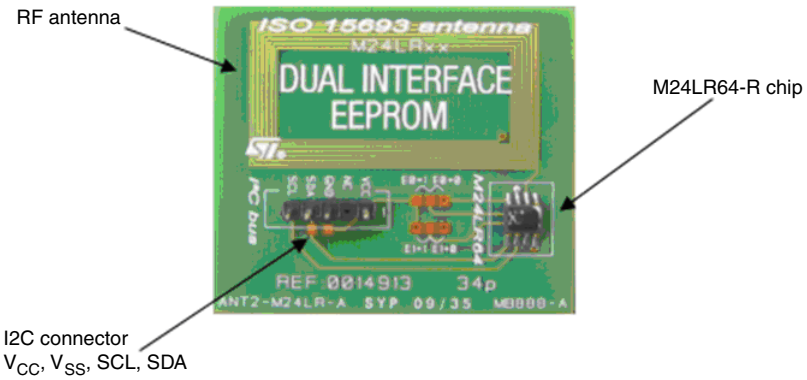
Figure 43. I²C bus cable



- M24LR64-R's reference antennas:
  - ANT1-M24LR-A: RF antenna size: 75 mm × 45 mm (2.9 in × 1.77 in) shown in *Figure 44*.
  - ANT2-M24LR-A: RF antenna size: 20 mm × 40 mm (0.79 in x 1.57 in) shown in *Figure 45*.

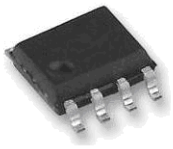
Figure 44. ANT1-M24LR-A reference antenna

Figure 45. ANT2-M24LR-A reference antenna



- M24LR64-R samples in SO8 package (see *Figure 46*).

Figure 46. M24LR64-R in SO8 package



4.2 M24LR64-R's demonstration kit

4.2.1 Ordering information

The part number of the demonstration kit is: **DEMOKIT-M24LR-A**.

4.2.2 Demonstration kit package

The demonstration kit contains:

- a middle-range RF reader (ISO 15693, RF 13.56 MHz) interfaced via the USB bus, shown in *Figure 47*.
- an M24LR64-R's reference antenna: PRIM2-M24LR-A, RF antenna size: 20 mm × 40 mm (0.79 in x 1.57 in) shown in *Figure 48*.
- Optional: STM32-PRIMER2 (to be ordered separately) shown in *Figure 49*.

Figure 47. RF reader

Figure 48. PRIM2-M24LR-A reference antenna

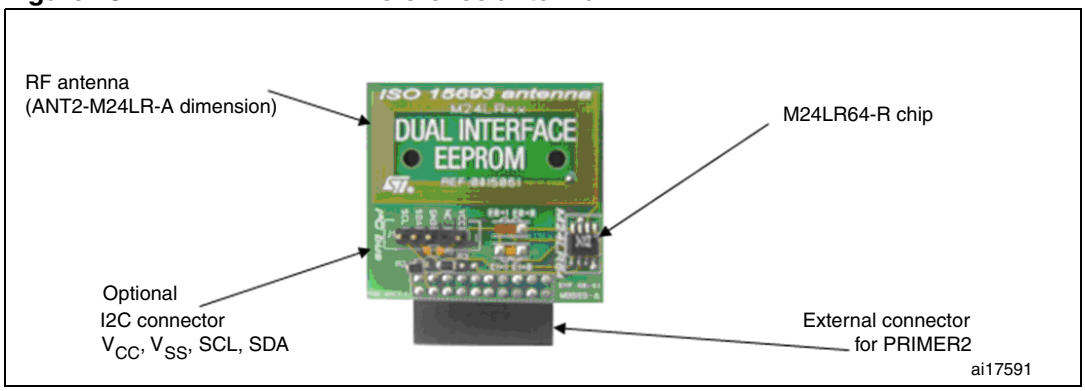


Figure 49. STM32-PRIMER2

1. Not included in the kit, to be ordered separately.

Figure 50. Connecting your reference antenna to your STM32-PRIMER2

4.3 M24LR64-R's starter kit

4.3.1 Ordering information

The part number of the starter kit is: STARTKIT-M24LR-A

4.3.2 Starter kit package

The starter kit contains:

- a reader with an integrated solution for I²C communication (connector) and RF communication (ISO 15693, RF 13.56 MHz) interfaced with a USB bus as shown in *Figure 51*.

Figure 51. I²C & RF reader

- M24LR64-R's reference antennas:
  - ANT1-M24LR-A: RF antenna size: 75 mm × 45 mm (2.9 in × 1.77 in) shown in *Figure 44*.
  - ANT2-M24LR-A: RF antenna size: 20 mm × 40 mm (0.79 in x 1.57 in) shown in *Figure 45*.

Figure 52. ANT1-M24LR-A reference antenna

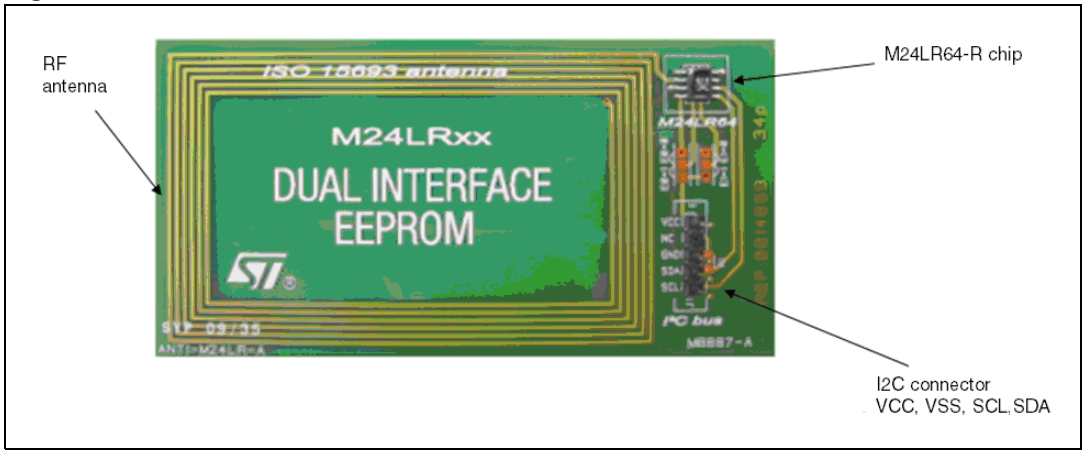
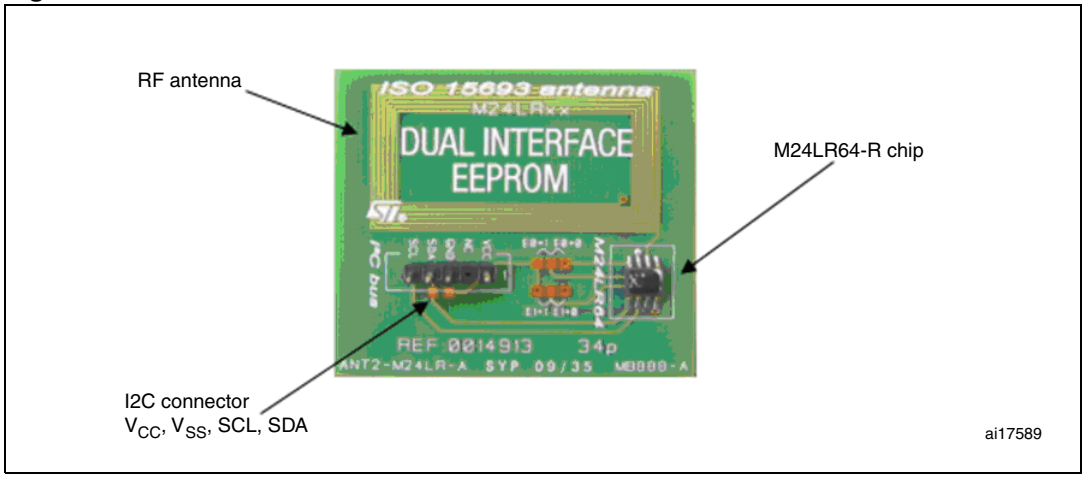
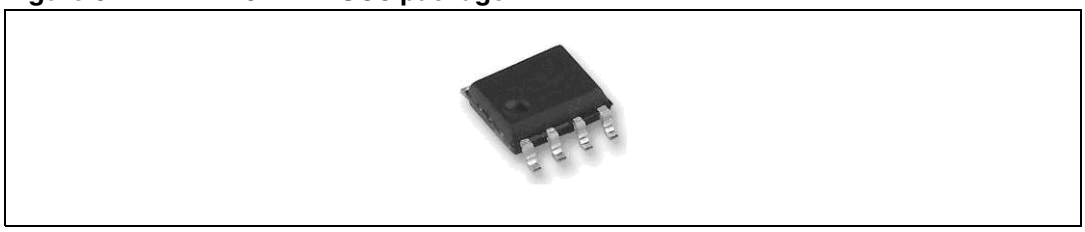


Figure 53. ANT2-M24LR-A reference antenna



- M24LR64-R samples in SO8 package (see *Figure 46*).

Figure 54. M24LR64-R in SO8 package



4.3.3 Connecting the readers and cables to your computer

Once the installation of the software drivers is complete (see previous sections *Installing the setup.exe* and *Installing the setup.exe*), you have to physically connect the readers.

Connecting the RF reader

- first, connect the external antenna to the RF reader
- then, connect the power supply of the RF reader
- you can now connect the RF reader to the USB port of your computer

  The RF reader is ready to be used. Keep your tag on the external antenna to communicate through the application software.

Connecting the I²C bus reader

- First, connect the I²C bus reader to the USB port of your computer
- then connect the I²C cable from the I²C bus reader to an M24LR64-R tag

Figure 55. External connector pinout of the serial I²C bus reader

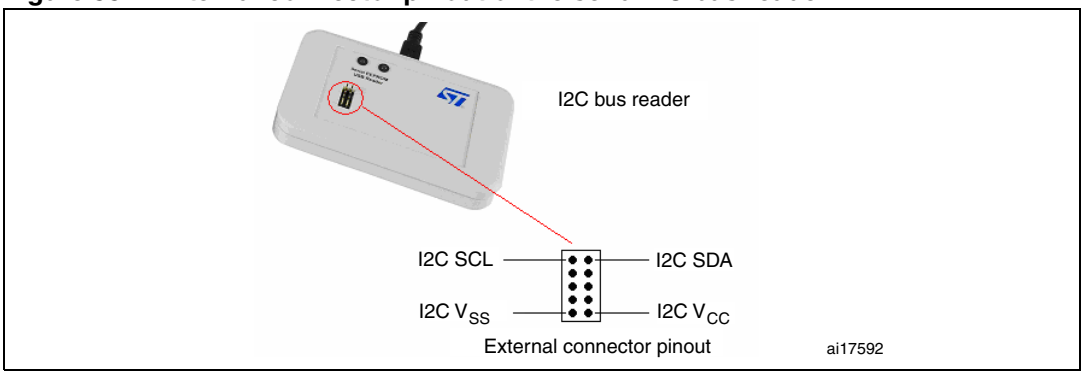


Figure 56. External connector pinout of the M24LR64-R tag

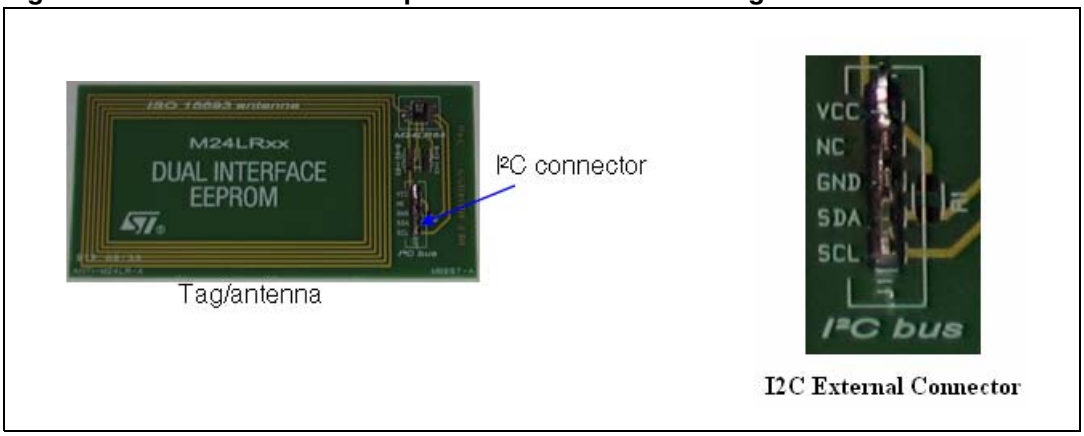
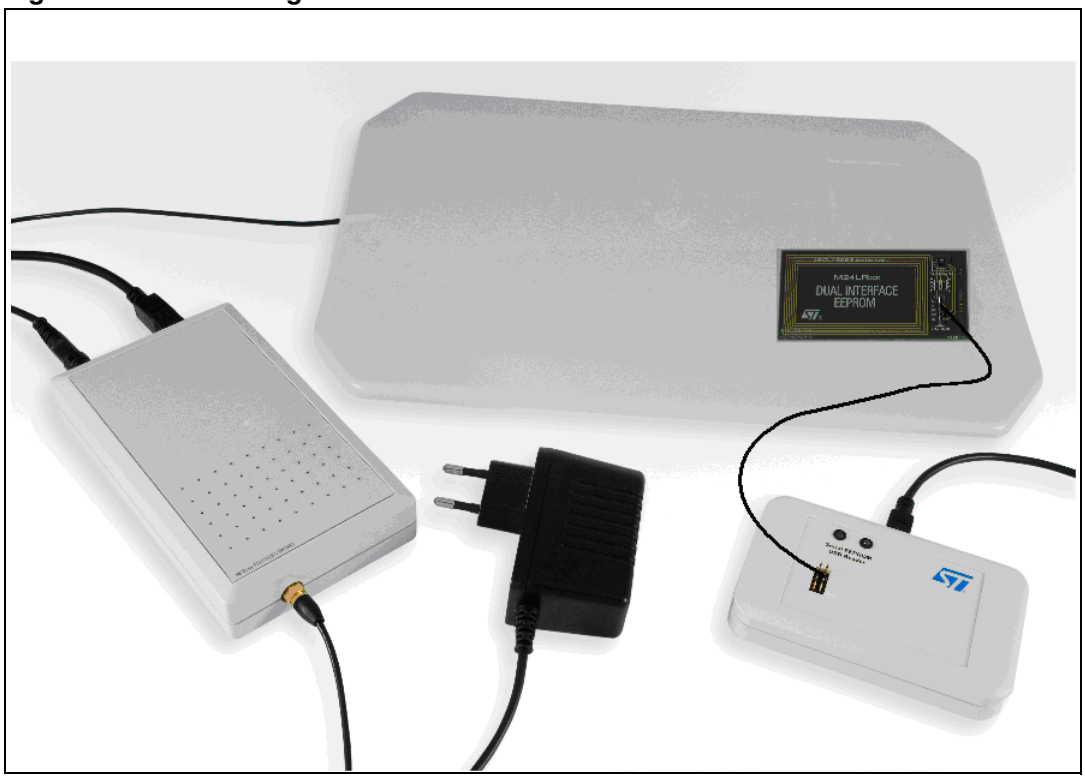


Figure 57. Connecting the RF and I²C bus readers



4.3.4 Web support and references

ST products (M24LR64-R datasheet, application notes, etc.)
Serial EEPROM USB reader
Software

For further information and copies of the available technical documentation, please contact your nearest ST sales office.

FEIG ELECTRONICS RF readers

http://www.obid.eu/
http://www.feig.de/

eStar RF & I²C reader

http://www.estarcorp.net/en/index.asp

STM32-PRIMER2

http://www.raisonance.com/
http://www.stm32circle.com/

You can now enjoy your kit!

5 Revision history

Table 1. Document revision history

Date	Revision	Changes
30-Nov-2009	1	Initial release.

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